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Osteodystrophic Disease in the Dog, with special reference to Rubber Jaw (Renal Osteodystrophy) and its Comparison with Renal Rickets in the Human

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INTRODUCTION

Although the manifestations of osteodystrophic disease in the dog are well recognised by those engaged in small-animal practice there is, with the exception of rickets, a distinct gap in veterinary literature in regard to the condition. The published work which does exist is therefore small in amount. It is also extremely confused in respect of terminology and aetiology. In the standard works the conditions which come under the heading of osteodystrophic disease generally appear as rickets (juvenile and adult forms) or osteomalacia. An exception to this occurs in Hutyra & Marek where the various conditions are dealt with under osteodystrophic disease proper. The issue is confused in all the standard works since no separation is made between osteodystrophic disease with an associated renal lesion and an independently occurring non-renal form. The exact implication of this may not be readily apparent unless it is realised that the literature recorded on the subject would lead one to assume that, *e.g.*, an adult and a juvenile form of rickets occur, that an osteomalacia or "rubber jaw" (given as a single entity) exists in adults and pups alike, etc. It is in fact only comparatively recently that the coincidence of the renal and skeletal changes in "rubber jaw" have been recognised as more than mere chance.

I have considered it best to divide the cases which form the basis of this article into a "renal" and a "non-renal" form of osteodystrophic disease since this makes for clarification, especially in respect of nomenclature. As will also be seen, the evidence which is available from the literature and from the cases described, would seem to denote that this division corresponds with an age-grouping, *i.e.*, the renal form is a disease of adult dogs whereas the non-renal form is a disease of pups. Having made such a dogmatic division it is as well to stress at the outset that it is made largely for convenience in discussion and I cannot pretend that it will cover all and every case of osteodystrophic disease in the dog (see later). The renal form is a single entity and the syndrome is commonly known amongst clinicians as rubber jaw. Unfortunately, however, the jaw symptoms are not confined to the renal form only. Thus the all-inclusive term "rubber jaw" fails to throw a true light in respect of aetiology and unless its use is confined to a single syndrome, *e.g.*, the renal form, or is merely meant to express a single symptom, it is of little value. In this article its use is confined to the renal form unless it is expressly used to describe skeletal lesions in other syndromes. Rickets proper is not discussed and no attempt has been made to uphold the division of this disease into a juvenile and adult form. Similarly osteomalacia proper is not discussed since there is no evidence that it occurs in the dog as, *e.g.*, it is seen in the goat or human. The term itself is, however, retained for its derivative meaning (bone softening). Other than references to rickets proper, the references to osteodystrophic disease in the dog occur in the standard works as follows: osteomalacia (Müller & Glass), adult rickets and osteomalacia (Wallis Hoare), osteomalacia and rickets (Friedberger & Frohner), rickets (Wooldridge) and osteomalacia (Kirk). The reference in Kirk's *Index of Diagnosis* follows a description of rickets and is the only one in the standard works in which the connection between renal and skeletal disease is noted. Kirk, however, retains the use of the term osteomalacia to describe the bone lesion. American references similarly use the term osteomalacia for describing the bony changes present in the dog.

In Hutchison's *Dog Encyclopaedia* (Vol. 2. p. 1290) there appears a good reference to rubber jaw in which the clinical use of the term is noted. It is, however, inadequate to indicate exactly whether the renal form only is meant: "a rare disease sometimes affecting the dog in which the bones become soft and brittle. It is attended with rheumatic pain, weakness and eventually exhaustion. The disease in dogs has been called rubber jaw or rubber face as it seems to have some predilection for these parts." Easily the best reference to osteodystrophic disease is contained in Hutyra & Marek. It must be borne in mind, however, that all of the above references (with the exception of Kirk's) relate only to skeletal disease and a concomitant renal lesion which has been overlooked must remain an assumption in regard to those cases which are construed as referring to the renal form. Nevertheless, little doubt arises in such a description as occurs in Müller & Glass (p. 456): "the author observed but one case, in a lean six-year-old terrier that had a history of having for some time suffered from rheumatism of progressing severity and difficulty in mastication ... the latter (maxillary bones) were so soft and flexible that the rows of teeth on either side of the jaw, upper as well as lower, could be forced into contact with each other, just like so much rubber." The words "lean six-year-old terrier" are pointers to the case having been one of the renal form. H. Gray's description in Wallis Hoare also leaves little room for doubt that cases of the renal form are included amongst what he termed cases of osteomalacia: "H. Gray informs us that in his experience osteomalacia is not rare in the dog. The nasal, maxillary and mandibular bones are chiefly affected and the bony tissue is altered to a rubber-like condition. The aetiology is unknown. The above writer has observed the development of the disease after the extraction of teeth but he also points out that it may also occur when the teeth are in normal condition. Age has no influence as the disease is observed in young as well as in old animals." Only in Hutyra & Marek is the lesion in dogs referred to as being one of osteodystrophia fibrosa which is almost certainly the true condition existing in the renal form although it is open to question which bony lesion or lesions may be present in the non-renal form.

Renal Form. (Rubber Jaw. Rubber Face.) Renal Osteodystrophy

GENERAL REMARKS

Specific references to this complaint outside the standard works are few and far between and generally very brief. The majority of these occur during discussions on or in the course of papers on a general subject such as "nephritis"[1 2 3]. As far as I am aware, the first recorded attempt at correlating the renal and skeletal lesions was made by Dr. Tom Hare during delivery of a paper before the Royal Society of Medicine[4] in which he described eleven cases of the disease. It should be noted also that Hare described these cases as being primarily cases of nephritis (the general subject of the various papers read was chronic nephritis). O. Uvarov[2] observed six cases in a group of 157 patients for urinalysis. All six cases occurred in males. Professor J. G. Wright[3] observes that "on a number of occasions he encountered the condition at the Poor Out-Patients' Department of the Royal Veterinary College." These occurred during attendance on 3,327 cases of which 59 were cases of chronic nephritis. Wright in this series gives an age incidence for the chronic nephritis group as being five years and over (*i.e.*, none occurring under five years). Wright again mentions the condition in an article on dental disease [5]: "associated with the same disease (uraemia) an osteitis fibrosa of the jaw-bones is sometimes seen." G. Schnelle[7], in a series of articles on veterinary radiography, describes how osteomalacia of the head may be recognised by means of X-ray but then mentions amongst other conditions the radiographic diagnosis of osteitis fibrosa. I assume therefore that he recognises the existence in the dog of osteomalacia *per se* apart from osteitis fibrosa. Schnelle also refers to the condition in his book *Radiology in Canine Practice* (p. 198). He has further kindly informed me that affected dogs (rubber jaw—renal form) develop uraemia and die and that some of the cases he has seen have involved the head only but others have involved the whole skeleton in respect of bony lesions. Dr. G. O. Davies[5] gives a full description of the pathology of the bone lesions of rubber jaw in which the condition is described as being one of osteodystrophia fibrosa. Sir Arnold Theiler[14] similarly described the bone lesions of cases which almost certainly included some of rubber jaw, as being those of osteitis fibrosa. Hare in his description of the condition[4] mentions that the clinical picture was dominated by the osteoporosis of the skull but that histologically the lesion was one of osteitis fibrosa.

SYMPTOMATOLOGY, ETC.

As far as can be gathered the disease attacks dogs of all breeds and of both sexes. Over a larger series it is possible that a degree of breed incidence might become apparent (those breeds most commonly the victims of chronic nephritis). In a similar manner there seems good ground for believing that it is by far the commoner in the male. In the records of cases occurring in this practice over the last four years, whilst no attempt has been made to keep strict records of the complaint (for example probably a good few cases were destroyed as incurable after cursory first examination and no record kept) it is found that 10 cases occurred. The sex incidence was in the ratio of two males to one female. In regard to age incidence it is rare below five years or above twelve years. The youngest age at which it has been seen was 18 months and the oldest twelve years. The average age incidence was six years. The disease seems to attack dogs of a younger age group than does chronic nephritis *per se*. Thus it tends to occur on the average at ages five to six years rather than eight to nine years. If this is borne out over a larger series it will have important bearings on the aetiology of the essential kidney lesion. The renal lesion is essentially a nephritis of the chronic type which produces, as seen at *post-mortem* examination, cirrhotic kidneys atrophied to a degree practically never encountered without this disease. "Walnut kidneys" is an apt description of the lesion. The symptoms shown are thus partly those originating from the marked kidney lesion. The bone lesions are almost certainly secondary to those occurring in the kidneys but it is a matter of speculation at present as to how far the nephritis lesion has progressed before osteomalacic symptoms become evident. O. Uvarov mentions a case which had nephritis (subacute passing into chronic) for 18 months before developing rubber jaw. Superimposed upon the renal lesion there become evident bony changes which are typical of the disease. These bony lesions are now considered to be those of osteodystrophia fibrosa (osteitis fibrosa)[3 14 4]. The course of the disease is of necessity long drawn out but once skeletal changes become evident clinically the end is in sight within a matter of a few months and on occasion much sooner than that. During the stage of progressive renal disease there seems to be nothing apparent clinically which determines that the case will eventually progress to the rubber jaw syndrome. In other words, it would seem to be clinically impossible to differentiate a nephritis ultimately leading to rubber jaw from, say, a nephritis culminating in one of the recognised forms of uraemia. Indeed, it is strange that rubber jaw has not been previously classed with the other uraemic syndromes since it is almost certain that a pronounced degree of uraemia is present during the later stages of the disease. The animal is, however, generally destroyed before the full course of the disease has been run, largely on account of the developing bone dystrophy.

As a rule the dog is presented when early bone lesions are becoming detectable since it is at this stage that interference with mastication calls the owner's attention to the animal's state of health. Since a small loss in weight is generally apparent by then the dog is commonly presented as a dental case. Rubber jaw may, however, be detected by the clinician long before interference with mastication is evident. Thus an observant owner may present the animal for symptoms directly referable to the renal disease. These are of the usual character in a subacute to chronic nephritis case and include inordinate thirst, polyuria, night bed-wetting, fickle appetite, skin disorder, etc. The extent to which decalcification of the bones of the head can progress before veterinary aid is sought is remarkable, nevertheless. In such cases the jaw bones may be so pliable and rubber-like in consistency that it is almost possible to make the tips of the upper incisors touch by bending inwards. There is no call here to recapitulate the nephritic symptoms present in every case. They differ in no way that is detectable clinically from other cases of chronic progressive renal disease. There is no evidence available at present permitting one to state at which point in the development of the renal lesion, osteodystrophy may be said to commence. It is certain, however, from *post-mortem* evidence, that a very advanced stage of kidney disease is present before even the earliest clinically detectable signs of bone disease manifest themselves. In other words, I have failed so far to detect a case exhibiting bone dystrophy which did not yield shrivelled nutmeg kidneys at *post-mortem* examination. *Post-mortem* examinations have been made on the earliest detectable cases of the disease. There are certain points in respect of the kidney symptoms which are given more as impressions than statements of fact, the size of the series justifying nothing so dogmatic. They belong more properly to the realm of differential diagnosis. Rubber jaw cases do not seem to progress to the same degree of emaciation that is often present in chronic nephritis *per se*, *e.g.*, those which progress to become established cases of uraemic poisoning exhibiting uraemic fits, etc., and frequently terminating in coma. Uraemic eczema (uraemic skin) is not so pronounced and indeed none of the terminating uraemic symptoms (convulsions, coma, end stage vomiting, etc.) have been seen in the cases in this series. This is largely explained by the fact that a large number of the cases were destroyed on account of the developing bone dystrophy before the final uraemic symptoms might logically have been expected. It may well be, however, that the bone disease will of necessity cause the animal's death in rubber jaw before the final uraemic stage, in contradistinction to uncomplicated cases of chronic nephritis. The above statements are not necessarily opposed to Schnelle's opinion that affected dogs die of uraemia but are rather an amplification of the point.

Bone lesions become apparent in the majority of cases primarily in the premaxilla and incisor bone region of the mandible. There is some variation in the exact location of these lesions. The most common is probably confined to either the upper or lower jaw but both incisor regions are often affected at the same time. The incisor area is generally the first to be affected independent of which jaw it appears in first. I cannot recall having seen a case where the molars or premolars were affected without the incisors being involved to an even greater extent. At the earliest stage the degree of movement which can be obtained is very slight. It can only be detected by attempting to move the small incisors backwards and forwards. The disease can be detected in the small incisors before the canines. It is sometimes difficult to differentiate the increased mobility in the early stages due to a certain amount of movement normally present in these teeth. In such cases other symptoms are helpful as an aid to diagnosis. The condition seems to develop by progressing backwards along the jaw bones. There does not seem to be any abnormal slackness of the teeth in their sockets at any stage of the disease unless pyorrhoea supervenes and this is exceptional. Lesions of the bones of the face and skull are generally secondary in development to those already described in the jaw bones. Here again the disease process seems to commence most anteriorly. In this case, however, the decalcification has the effect of thinning and softening the bone tissue to such an extent that it bulges outwards beneath the overlying skin and gives the dog's head a swollen appearance. In its most advanced stage the animal presents a grotesque appearance resembling in many ways the acromegalic facies of the human. In the horse this state of affairs has been aptly termed "big head." At this stage of the disease interference with mastication becomes pronounced although it is surprising to what a degree the jaw lesions must advance before there is any suggestion from the owner that the dog is having difficulty with hard food. This is possibly due to the fact that, in the dog, very little proper chewing normally is performed. When the facial bones are involved to any extent (and presumably the turbinates) interference with respiration causes distress in breathing and a snuffling catarrh commonly follows. This symptom has given the name "snuffles" to the allied disease in the pig.

The mouth is typical of a nephritis case and the breath corresponds. When jaw lesions begin the state of the mouth may worsen quickly but this is entirely dependent on the original condition of the teeth. In younger dogs with sound teeth, even with advanced bone disease, it is surprising how clean the mouth remains. On the other hand, when tartar deposits are heavy and slight pyorrhoea is present as is common in older animals, the condition of the mouth deteriorates quickly due to retention of food particles and ulceration of the cheeks and gums. The presence or absence of vomiting is another prominent factor in deciding the condition of the mouth. No further skeletal involvement has been seen in proved cases of the disease in this series (*i.e.*, where subsequent *post-mortem* examination has proved the presence of the kidney lesion) but two cases are described which showed involvement of the limbs. These cases were almost certainly examples of rubber jaw but unfortunately no *post-mortem* evidence is available in either case. Schnelle, however, as previously mentioned, says that he has seen cases of the disease with involvement of the entire skeleton. This point is referred to the discussion. The dog is generally destroyed at the stage of head involvement for any of the following reasons: the grotesque appearance of the head, the persistent vomiting, the steady loss in weight, the offensive mouth, etc.

Complicating factors in individual cases may cause some variation in symptoms but these are additional to those already described and the symptoms referable to the bone and kidney lesions are present in every case. Thus prostatic disease may be coincident with rubber jaw and in very advanced degree. A case mentioned by Hogg[15] had suspected malignant disease of the prostate coincident with gross osteomalacic disease. At *post-mortem* examination the prostate was grossly affected and secondary metastases were observed in the inguinal glands. Such a case exhibits symptoms referable to all lesions, *viz.*: prostate, kidneys and bone disease. In one case heart symptoms were very pronounced. These included heart "strokes" or "falling over" attacks with gross dyspnoea on exertion. The association of such symptoms with advanced kidney disease is obvious. Uvarov[2] mentions anaemia as being a prominent symptom of rubber jaw but I cannot say that I have observed this to be so on clinical examination alone. Neither have I been able to detect any symptoms of a rheumatic nature such as are mentioned in some of the older works in descriptions of what are presumably cases of

rubber jaw. Such symptoms suggest involvement of the skeleton and since only two cases of this have been seen, the gap in the present series may be explained in this way. Alternatively these symptoms may be directly referable to kidney disease. Thus Uvarov[2] mentions stiffness as a prominent symptom of kidney disease in the subacute and chronic form. I cannot say that I have observed this to be so, however, except in the primary acute phase. Both these cases occurred at rubber jaw age and showed symptoms of chronic nephritis but, as already mentioned, no *post-mortem* evidence of renal disease is available since the ultimate outcome of both cases is unknown. They can therefore only be classed as possible variations of the rubber jaw syndrome. The unusual feature in both cases was the absence of jaw lesions (movable teeth). In one case the osteomalacic lesions were confined to the skull, resembling those already described, except that the disease was extremely pronounced giving the dog an ugly and grotesque appearance. There was also a very slight suspicion of fore limb bending in the region of the radius and ulna. In the second case, coincident with skull lesions there was a fairly pronounced bending of the fore limbs in the same position. As far as could be judged clinically no other part of the bony system was affected in this case. The bending of the fore limbs was outwards, *i.e.*, in characteristic rickets fashion.

These two cases are mentioned here since they are of significance in relation to the question whether a bone disease similar to or identical with osteodystrophia fibrosa occurs in the dog (adult) the origin of which is other than renal. This will be referred to again in the discussion. Suffice it to say here that so far I have not seen bony lesions other than those described in the jaw bones and skull in proved cases of the renal form. In many of these cases the head lesions were fully developed and at this stage the renal condition is generally such that a renal crisis is impending. In such circumstances it is hard to imagine any further involvement of the skeleton, assuming that the skull lesion is always primary. Within the realm of differential diagnosis the only possible condition which might give rise to confusion is hypertrophic pulmonary osteoarthropy. This condition is evidently rare but excellent descriptions of it are available in the literature.

Non-renal Form

General Remarks

This series consists of a miscellany of cases which have been seen during a similar period of time to those of the renal form. I have included two cases, however, the clinical features and case records of which have been kindly furnished me by Mr. H. Holroyd although they occurred at some time previous to the present series. No renal lesions have been discovered in any of these cases where *post-mortem* evidence was available. In others the clinical features and/or subsequent recovery made coincident renal lesions highly improbable. The entire series consists of dogs under six months of age, *i.e.*, approximately of rickets age. Although rickets as it occurs in practice more or less conforms to its text-book description, *i.e.*, bending of the long bones of the limbs, swelling of the joints, etc., odd cases are seen which, at least in appearance, resemble much more closely the osteomalacic facies of rubber jaw. These cases are undoubtedly uncommon and only two cases have been seen in the same length of time as the 19 cases of rubber jaw. Both cases occurred in very young pups (under three months) and they appeared clinically to be cases of generalised gross rickets. The unusual feature, however, was the appearance of bony lesions of the skull. The lesion seems to be identical with that of rubber jaw when it affects the bones of the face, *i.e.*, a swollen acromegalic appearance due to the thinning and bulging of the underlying bone. There was not, however, a concomitant softening of the jaw bones. One obtained the impression that these cases were a rather special variation of the rickets syndrome. The puppies were poor and backward, unthrifty, with a dry harsh skin, etc. Three cases have been seen recently of a condition which again suggests rickets. The disease occurred in greyhound pups, three months old, unable to stand and presenting spontaneous fractures of the long bones of the limbs. Thus one pup had bilateral femoral fractures, another fractures of the radius and tibia, etc. The fractures were mostly mid-shaft and callus formation was present in some, with false joint formation in others. In the pup with bilateral femoral fractures the fore limbs showed muscular and ligamentous hypotonicity so that it crawled on its wrists. Extra mobility of the joints (acrobatic joints) could be made out in all cases. I would not care to state whether the joints in these cases showed rickety enlargement. There was no bending of the long bones of the limbs. The most striking and unusual feature of these cases, apart from the bone lesions, was, however, the excellent bodily condition and apparent good health of the pups. Their appetite was good and they were gaining weight daily. The coats especially were in perfect condition. This is in direct contradiction to the previous two cases described. The case history, etc., of Mr. H. Holroyd's two cases is as follows. Two wire hair fox terriers, age approximately five to six months, showed symptoms of mouth trouble which on first examination was shown to be caused by gross bone disease of the jaws. The condition is described in the case histories as being that of rubber jaw. There was no involvement of the bones of the face. The teeth were movable and the jaws were like rubber, *i.e.*, identical with the renal form of the disease in adults. The pups had done well until this condition occurred. Under treatment both cases improved. One dog subsequently recovered whilst the second was destroyed later on account of fits although recovering from the jaw disease. The treatment was vitamin C but probably advice was given at the same time *re* alteration in diet, etc.

DISCUSSION

In any discussion on osteodystrophic disease the question of the pathology of the bone lesion and its terminology inevitably arises. The term rubber jaw or rubber face suggests a clinical source but I have been unable to trace the originator. As a descriptive clinical term it deserves to be retained but like all such terms it is apt to be misleading in respect of aetiology and confusion arises with other syndromes. The bone lesion in adults has been referred to as osteomalacia, osteoporosis and osteitis fibrosa (osteodystrophia fibrosa). Of these terms it is evident that only osteodystrophia fibrosa is a true description of the lesion in the renal form (adult disease). Hutyra & Marek state further (Theiler goes into the question also) that the canine lesion of osteitis fibrosa is hyperostotic porotic in form. They also describe cystic spaces or swellings as occurring in the bone lesions, similar to those described in human renal rickets. Theiler also mentions this finding. This has suggested the descriptive phrase osteodystrophia fibrosa cystica for the latter complaint. This is a cumbersome phrase for everyday use and for the renal form of the disease in the dog we might do well to adopt the term suggested for the human disease renal rickets, namely renal osteodystrophy. In respect of the pathology of the bone lesions, whilst I am in no position to pass any comment on the histology, etc., of the lesion nor in regard to the finer points of differentiation between the various osteodystrophies, there are nevertheless certain clinical findings which have a bearing in this connection. G. O. Davies[5] seems to have accepted the suggestion of the commonness of fractures in rubber jaw. It would appear, however, that this was at secondhand. I have personally never observed fractures in cases of the renal form. It should be mentioned at this point that the cases described by Davies were not proved cases of the renal form, *i.e.*, no renal lesion is mentioned. From the age of the dogs, however, and the description of the condition there would appear to be little doubt that the renal form was the condition seen. In fact to the best of my knowledge there is no available evidence either in recorded literature or from any clinical source to suggest that an osteodystrophy of any form (osteomalacia, osteitis fibrosa, osteoporosis) exists in the adult dog that is other than of renal origin. This is no reason to suppose that such a condition does not exist but it makes the question of the older references to the renal form of necessity assumptive. Also with the comparative frequency of the renal form, the onus in future rests upon anyone quoting or describing osteodystrophy in the adult dog to confirm the presence or absence of the renal lesion. Other than in two unproved cases of the disease, I have so far never seen bone lesions in any part of the skeleton other than the skull. Nevertheless, it would appear that such lesions are invariably present but may not be observable clinically (Theiler, p. 200). Theiler also mentions bending of the legs but I am in little doubt that he was referring here to the non-renal form. Theiler's paper[14] remains the most comprehensive and detailed account we have of osteodystrophic disease in general but his remarks in respect of the canine lesion are very brief. For example, no hints are given as to age, which complicates matters considerably. We are left in the dark as to how many cases of the renal form were actually observed and how many were non-renal, *i.e.*, variations of the rickets syndrome. The relevant references are as follows: p. 158 in respect of osteoporosis: it is a "very marked feature of the osteodystrophia fibrosa of . . . and dogs; a disease now classified apart from true osteomalacia." Also p. 165: "For dogs the evidence of the literature not only points to the existence of true rickets, but also to the occurrence of osteodystrophia fibrosa, *a disease which may clinically be mistaken for rickets*" (my italics.) On p. 192, in respect of osteofibrosis in the dog, after referring to "big head" in horses and "snuffles" in pigs, "similar changes are seen in the dog which, however, may also show deformation of the bones of the extremities and the 'rickety rosary' in the ribs." Theiler disliked the view that osteofibrosis might supervene, *e.g.*, on rickets, and preferred to believe that the two might exist together at one and the same time. Theiler's references, which give few hints as to whether he was aware of more than one form of osteofibrosis occurring in the dog, lead to a discussion of the non-renal form. There are no direct references to this condition outside the older standard works where, generally under osteomalacia, occur descriptions which would suggest the renal form if it were not for the fact that the condition is described in young dogs. Also there occur, generally under rickets, cases such as those described as the non-

renal form earlier in this article. Thus in respect of the osteomalacic facies of the two rickety-like pups the following are noted: Müller & Glass, p. 454: "We find periosteal alterations in the frontal bones and bones of the temple, so that the head shows a peculiar marked alteration in conformation." In Friedberger & Frohner (Vol. 2. 598): "According to Zschokke osteomalacia occurs sometimes in puppies which is identical with the form in children." In respect of the three cases with spontaneous fractures we have Wallis Hoare (Vol. 2.1337) quoting Gray: "... whilst in the greyhound class of dog the radii and ulnae and tibiae are liable to become fractured. This fracturing of bones may be seen in several dogs at the same time in the same kennel." Also on p. 1337, quoting Gray: "The posterior surface of the metacarpal or metatarsal region rests on the ground, so that the animal assumes the attitude of a plantigrade animal." This latter point is, however, common in straightforward rickets cases but it is given here because it is in close association with the remarks on spontaneous fractures. In respect of Mr. H. Holroyd's two cases we have Wallis Hoare, again quoting Gray, p. 1338: "In the dog and pig the skull, especially in the zygomatic, nasal and upper maxillary regions, becomes swollen" . . . "The lower jaw as well as the upper jaw, in consequence of pressure of one against the other during feeding, may be spread outwards, as may the teeth." And in Wooldridge (Vol. 1. 389): "When the jaw bones are affected the nasal chambers may be obliterated and the upper jaw may protrude, whilst the teeth may become loose. When the lower jaw is affected as sometimes happens in dogs it becomes somewhat pendulous." Also on p. 390: "When the lower jaw is affected the rami become thick and softened (rubber jaw) and may become partly pendulous." In respect of the two latter references I might mention here that I have never seen a pendulous jaw in a case of the renal form. H. Kirk (2nd Edn., p. 391) also gives a reference which I take to denote that similar lesions to those described above may occur separate from coincident renal disease. No hint is given, however, as to which conditions are meant. "A condition of osteomalacia of the bones of the skull (often termed 'rubber jaw') in which the jaws become so elastic that one can bend them like rubber has been observed occasionally in association with chronic nephritis and *other conditions in which the metabolic upset may be marked*" (my italics). Hutyra & Marek mention that osteodystrophic changes may supervene in cases of rickets and osteomalacia but are very indefinite. Gray's short reference (in Wallis Hoare) to osteomalacia is also pertinent here. He says that "age has no influence, as the disease is observed in young as well as in old animals." He further observes that "the limbs in some instances may be curved as in rickets."

With Hare's recording of the renal lesion a new interest was shown in rubber jaw especially in respect of aetiology. Since then discussion has mainly turned on the role of the parathyroid gland in the causation of the disease and comparisons have been made with, *e.g.*, Von Recklinghausen's disease in the human. Thus an abstract in the *North American Veterinarian*[16] refers to osteo-dystrophia fibrosa as being a primary hyper-parathyroidism in Von Recklinghausen's disease, "which is caused by a tumour of one or more of the parathyroid glands" and as secondary parathyroidism in respect of rickets, "renal rickets," and osteomalacia in which there is an enlargement of the parathyroid glands presumably representing a compensatory response. Similar enlargement (of the glands) has "been described in . . . chronic nephritis." I have been unable to demonstrate macroscopically at *post-mortem* examination of any case of rubber jaw, either a tumour or a hypertrophy of the parathyroid glands. Neither is there any clinical reference (veterinary) which lends support to the view that the parathyroids are abnormal at necropsy.

There are, however, good grounds for believing that the parathyroids will be found to be hypertrophied at necropsy. This inference is drawn from the findings of medical workers in similar conditions in the human. The most recent work in this field has been done by Gilmour, J. R.[18]. The hypertrophy can be observed only by meticulous weighing and measurement of the gland, combined with detailed histological examination, etc., especially of the glandular parenchyma. It is thus easily seen why hypertrophy is not as a rule detectable on naked-eye examination alone. I have very little doubt that similar findings will be detectable in the glands in cases of associated skeletal and renal disease in the dog. In all fairness it should be pointed out, however, that similar findings, *i.e.*, hypertrophy adjudged by meticulous weighing and measurement, have been claimed in respect of the adrenal gland in cases of chronic renal disease in the human. Indeed, Stoeltzner (Hutyra & Marek. 3. 191), in his "adrenal theory," claimed disease of these glands as being a cause of osteomalacia. This is a point of some interest since the impression has been gained at necropsy that the adrenals were slightly enlarged as compared with the normal in cases of rubber jaw. This, however, would require further confirmation especially by applying the method of examination adopted in respect of the parathyroids by Gilmour. The claims in regard to the supposed hypertrophy in the adrenals in nephritis in the human are set out by Goldzieher (The Adrenals). But it should be noted that Goldzieher's claims in respect of hypertrophy in the adrenals are not confined to cases of associated renal and skeletal disease.

It is impossible to discuss rubber jaw in the dog especially in respect of aetiology, without taking duly into consideration similar syndromes in the human. To the best of my knowledge there are no other species in which renal and skeletal are aetiologically connected. Thus I have never observed a similar syndrome in the cat or in any of the larger animals and I know of no reports which would suggest that such a syndrome occurs in any other species. In the human there are two well-defined syndromes where skeletal disease and nephritis coexist. They are renal rickets with its subdivision, Franconi's syndrome, and Von Recklinghausen's disease. It is, however, well established that sporadic cases of osteitis fibrosa and osteomalacia coincident with chronic nephritis are seen in the human. For the benefit of comparison with rubber jaw the remarks in respect of human disease are confined largely to renal rickets. References to this disease of children are contained in various papers, but in particular in works by Hess[16] and Gilmour[18], and for an excellent summary in respect of the modern ideas regarding the condition there is a concise abstract in the *British Medical Journal*[13]. Most of the remarks which follow and are presented in summary form are drawn from the aforementioned works. Renal rickets is also known as renal dwarfism or renal infantilism. A new name suggested for the disease by Liu & Chu is renal osteodystrophy, whilst Albright, Drake & Suek have suggested renal osteitis fibrosa cystica. The time of onset of the disorder varies greatly. In general, it may be stated that the symptoms are first noted at the age of six to seven years. The ends of the long bones, especially those of the legs, may give way and lead to exaggerated malformations which resemble those encountered in the so-called infantile osteomalacia. Sexual infantilism and stunting in growth are also seen. The disease almost invariably terminates in death from uraemia. It is characterised by rickets-like deformities, osteoporosis, dwarfism, albuminuria, anaemia, impaired renal function and a high blood phosphorus. The pathogenesis of the disorder is obscure. The outstanding feature is an osteodystrophy and chronic renal insufficiency is the cause of this. There is marked polyuria and polydypsia, urine of low specific gravity, a trace of albumen but free from casts and by the phenolsulphophthalein test there is a disturbance in the excretory mechanism. The bony changes are not identical with those of rickets although those revealed by X-ray, also the gross skeletal deformities, are identical. Rarefaction of bone and cystic absorption are the most prominent X-ray feature. Shipley & Park state that the "involvement of the skull appears to be out of proportion to the involvement of the bones of the extremities or of the thorax." Liu & Chu state that there is a low urinary phosphorus, high serum phosphorus and renal failure. The concentration of inorganic phosphorus tends to be high and the calcium in the serum low. The urine is acid and there is a tendency to acidosis. Increased intake of phosphorus results in an increased excretion into the gut. There is an interference with calcium absorption, *i.e.*, the patient is in negative calcium balance. The nephritis is interstitial in type and an infection of the kidney has been suggested as the cause of the renal lesion.

Points of comparison with rubber jaw are self evident, and points of difference are mainly explicable on the basis of age, *i.e.*, rubber jaw attacks youngish to middle aged dogs on the average whereas renal rickets is a disease of children. It is thus easy to account for the absence of sexual infantilism and stunting of growth, etc., in rubber jaw. Similarly it seems more feasible that the osteodystrophy should follow more closely the rickets pattern in the human disease, whereas in rubber jaw the adult pattern of bone dystrophy is observed, etc. This is further confirmed by reference to other conditions and other species. Thus in Von Recklinghausen's disease the skeletal lesions are those of osteitis fibrosa (it should be noted here that chronic nephritis is a common coexisting lesion in this disease—Gilmour[18]). In horses with "bighead" and in the various osteodystrophies of cattle the lesion is that of osteitis fibrosa or osteomalacia or osteoporosis. In the pig "snuffles" is an osteitis fibrosa. In the goat skeletal disease takes the form of an osteomalacia. In other words, this is a confirmation of Theiler's work inasmuch as the form the lesion takes is predominantly dependent on the age of affliction. It would seem that this holds true independent of the exciting factors involved, *i.e.*, whether dietary in origin or not. There is no evidence in Theiler's original paper to suggest that he knew of the specific connection between renal and skeletal disease although his remarks leave the door open for such a possibility (see later). I have never observed a case of chronic nephritis in a puppy in association with rickets-like lesions and there is no evidence from any source to suggest that such a syndrome exists. The cause therefore of the cases described as non-renal in this article, which all occurred in young dogs, must remain speculative.

In respect of aetiology proper, although it is unwise to draw comparisons between apparently similar syndromes in different

species, there seems every reason for believing that the rubber jaw syndrome in the dog falls into the same category as those human diseases already mentioned. That is to say, the renal lesion is primary and the skeletal disease secondary in development, which is the generally accepted view in regard to the human diseases. The exact role of the parathyroid gland is still somewhat debatable. It seemed for a time as if it was to be relegated to a passive role, serving merely to reflect the altering mineral balance of the body. Gilmour's recent work[18], however, suggests that a more active part is necessitated. Such a suggestion is of value from the point of view of treatment. In regard to the essential kidney lesion which is the essential crux of the syndrome we are on very shaky ground indeed. The cause of the nephritis in renal rickets is unknown but infection is suggested. In the adult syndromes in the human the causes of the nephritis are various. Gilmour[18] gives full case reports from which it is obvious that the type of nephritis varies with the cause but that on the whole the greater the damage in the kidney, *i.e.*, the greater the interference with function, the more obvious the parathyroid hypertrophy and the skeletal lesion. Ascending infection from bladder and prostatic disease is mentioned as a cause as are also hydronephrosis, urethral stricture, carcinoma of the bladder, etc. I described a case[15] of malignant disease of the prostate with prostatic stenosis and gross skeletal lesions of rubber jaw. The inference of ascending infection is obvious. Dr. Tom Hare (personal communication) has suggested as the possible sequence of events : infection—maltreatment—chronic nephritis—rubber jaw. O. Uvarov's case[2] suggests that an initial acute attack was merging into a more chronic form. There are ample possibilities for infection in the dog in distemper secondary invaders, leptospirosis, B.H.S. infection, etc. Similarly the possibilities suggest either primary kidney infection from such diseases or secondary by way of pyelonephritis. In this latter connection Dr. Hare's remarks[17] are pertinent, namely that there are ample possibilities for both descending and ascending infections of the kidney in the dog without invoking the need of Bright's disease and that " at least some cases of chronic nephritis were of infective origin."

The point of discussion in regard to the cases described as of the non-renal form is whether these cases, and others similar, quoted from the standard works are examples of osteodystrophic disease separate from rickets proper, or whether they are rare variations only of this latter disease. I am personally of the opinion that there may be in this category of case examples of osteodystrophic disease unassociated with rickets, but that there also occur cases which are border-line, exhibiting features of both diseases. It will require detailed pathological evidence to prove this. There are many facts which lead one to arrive at these conclusions. Clinically many of these cases do not suggest rickets as it is generally recognised, *e.g.*, Mr. H. Holroyd's two cases or the three cases of spontaneous fracture. All of these were in excellent bodily condition, doing well under breeder's hands and therefore unlikely to be suffering from any of the deficiencies normally present in a rickets case. In children with rickets spontaneous fractures are quoted as occurring but rarely and only in extreme cases (Taylor's *Practice of Medicine*. 14th Edn. p.650), but they are not uncommon in renal rickets. Such fractures might have been expected in, *e.g.*, the two cases of osteomalacia of the head described in young pups, since gross skeletal changes characteristic of rickets were present. Theiler[14] says that " pictures resembling Barlow's disease in children are also recorded in the earlier experimental animals." Hess has also recorded that scurvy and rickets are often in close relationship in infants. The experiments of J. R. M. Innes[9] proved that the normal growing dog does not require vitamin C in its food for normal growth, but this does not rule out the possibility that the supposed synthesis of the vitamin might not be interfered with during the course of some other disease, *e.g.*, rickets, and thus a degree of scurvy supervene. Some supporting evidence for the belief that deficiencies other than those generally ascribed to rickets proper may be present in young dogs has been brought forward by Knight & Muir[6] in respect of cases seen by them in Scotties, five to seven months, where the prominent feature was a jaw bone lesion. This condition might well come into the category of the non-renal cases described in this article. It is also interesting to note that these investigators have turned to a human disease for a comparison. They suggest that the condition corresponds to or is identical with leontiasis ossea. Muir demonstrated that a lowered blood calcium was present in the affected dogs. The suggestion, however, that a hormonal influence (oestrogenic) may be present and that the jaw bone is liable to be affected primarily in adolescence on account of this, is inconsistent with the fact that the jaw bones are primarily affected in rubber jaw (renal form) and indeed the skull would seem to be the seat of predilection in osteodystrophy whatever the cause, *i.e.*, renal or dietary. Neither does there seem to be any age or sex discrimination in this respect in regard to osteodystrophy. The suggestion is also made that experimental work to produce the condition (leontiasis ossea) in the dog (presumably by feeding a calcium deficient diet) might support the theory of a calcium deficiency being primary. Many experiments of such a nature were conducted during the early work on rickets. Thus Theiler[14] : ". . . osteoporotic conditions have been observed in experimental studies in dogs and the usual small laboratory animals as a result of dietary deficiency of minerals." These studies were undertaken to throw light on the aetiology of rickets before the vitamin factor was understood. " When mineral deficiency was under consideration stress was usually laid upon calcium . . ." These osteoporotic conditions produced were referred to as rachitic osteoporosis. Other lesions besides those of osteoporosis were sometimes present " *so that the picture would resemble osteodystrophia fibrosa* " (my italics). In the experiments of Weber & Becks a ration poor both in calcium and vitamin D was fed to puppies weaned at about six weeks, and in experiment for four and a half to eight and a half months. Of seven dogs, four survived the experiment and were killed ; but on microscopical examination all showed generalised osteodystrophia fibrosa with tumour-like growths and cysts in the jaws. The authors explain the results as due to combined deficiency of calcium and vitamin D, but although their data do not allow of precise calculation, it is certain that the Ca/P ratio must have been very wide—Theiler[14]. The importance of acidosis on the calcium and phosphorus levels of the blood has been stressed by several authors. Thus Gilmour[18] points out that an acid diet increases the excretion of calcium and mentions that Jaffe, Bodansky & Chandler[19] produced a condition like osteitis fibrosa in young dogs on a low calcium diet especially if ammonium chloride was added. H. F. Dailey[8] described a case before the New Jersey V.M.A., the salient features of which are briefly summarised as follows since it was diagnosed as a chronic proliferative osteitis and occurred in a Scottie dog, eight months of age.

The description suggests osteodystrophia fibrosa. It is also rather pertinent that the case was cured with parathyroid and metagen emulsion. " The dog was in very good condition with the exception of the mandible which, over its entire extent, was enlarged about twice the usual size and in several places hard nodules, about the size of half a marble, could be detected involving the bone tissue ; these were very sensitive to the touch. The dog had been examined by several physicians, X-ray exposures had been made and the only thing they could agree on was that it was not rickets. We agreed with them on this point, as the radiographs of the other bones of the body showed no evidence of rickets." After the possibility of actinomycosis and osteosarcoma had been ruled out a biopsy section brought back a report of chronic proliferative osteitis. The treatment took two months.

I have purposely left Theiler's views on aetiology in respect of osteodystrophia fibrosa until the end of the discussion. If I summarise him correctly it might be said that he was convinced that whilst a pure dietary deficiency could produce such a lesion in some species, other factors producing metabolic upset might have to be invoked in respect of some cases in the dog. He thus more or less forecast the renal lesion and his remarks leave the door open for other possible ways in which the bone lesion might be produced. His remarks also on the role of the parathyroid gland are in line with modern opinion, *viz.* : that the gland may of necessity play some part in the production of the lesion, but it is probably only of minor account in the horse, pig and dog. It does not play the major role that it does in Von Recklinghausen's disease in the human—Theiler[14].

Treatment

In respect of the renal form this is essentially palliative. The best that can be hoped for is the establishment of a condition of *status quo* in regard to the bone dystrophy until the impending renal crisis supervenes. It is extremely doubtful if any tangible results are produced by attempted treatment of the kidney disease and other than simple alkaline mixtures nothing has been prescribed in these cases. Once the condition is definitely established as an osteodystrophy, treatment with calcium and vitamin D should be commenced immediately. Large doses are necessary and generally a simple stomach mixture aids their retention. An improvement in the well-being of the dog is generally observed by the owner after a week's treatment. A typical relapse resulted in a recent case where through a mistake the calcium treatment was withheld for a week. It seems feasible that a dog might be maintained like this if a case was obtained sufficiently early. It is even possible that a degree of firming up might be achieved in the bone dystrophy. Calcium deposition in the bone dystrophy has been observed by means of radiography in renal rickets in cases on calcium and vitamin D therapy. In practice, however, many factors other than those of a purely medical nature enter into individual cases in dogs. For this reason most cases of rubber jaw are destroyed, perhaps before the clinician, looking at the case from the medical aspect only, would like. For a description of the medical treatment of renal rickets see *Brit. med. J.* (Abstr.)[13].

The treatment of the non-renal form is of necessity speculative and

largely empirical but in this practice the basis of treatment remains that for rickets proper and this follows the usual lines. Over and above this in individual cases various measures have been adopted as the cases seemed to warrant. Use has been made of vitamin concentrates, etc., and on occasion recourse has been had to giving large doses of vitamin D by injection. Ultra-violet irradiation has been found helpful on occasion.

I have never used parathyroid hormone in the treatment of osteodystrophic disease but there are grounds for supposing that it might be of benefit in the non-renal form and it is just possible that it might serve to promote a condition of *status quo* in respect of the skeletal lesion in the renal form. I might mention also in respect of the renal disease in cases of rubber jaw that I have noticed an improvement in odd cases when a hexamine mixture has been prescribed. In fact I can truthfully say that this is the only drug which consistently produces some slight effect in chronic renal disease. Unfortunately its effects are sometimes the reverse of those desired.

Summary of Cases

Rather than give tedious individual case descriptions which would serve very little purpose since the salient features have all been mentioned, the series is summarised as follows :—

Number of Cases Seen : *Renal form*, 19 (proved 17, suspected two). *Non-renal form*, 7 (it is extremely difficult to give any definite figures here as will be readily understood, but these seven cases are the only ones which I can put forward over a similar length of time to the renal cases, which I believe to be definitely distinct from the rickets syndrome. A comparison in numbers can then be made with the adult form).

Renal Form

Sex incidence (known only in nine cases) : Males, six. Females, three. Lowest age recorded : one and a half years. Highest age recorded : twelve years. Average age incidence : six years. Mortality : 100 per cent.

Summary

A description is given of the symptoms seen in a series of 26 cases of osteodystrophic disease in the dog. In 17 cases chronic renal disease was proved to be present on *post-mortem* evidence. All these cases occurred in dogs of adult age. A short description is also given of seven cases seen in puppies but no *post-mortem* evidence is available in respect of these cases. It is suggested that renal disease was not present in any of these latter cases. The aetiology of the conditions described is discussed at length and comparison is made with similar syndromes seen in the human—in particular, renal rickets which is described in summary form. In respect of the renal cases the conclusion is drawn that the renal disease is primary and the skeletal lesions are secondary in development. Possible causes of the renal lesion are discussed. The mode of action of the parathyroid gland in the production of the bone disease also is discussed. In regard to the seven cases of non-renal osteodystrophy the conclusion is arrived at that these cases might be described as being border-line rickets but that deficiencies other than those ordinarily ascribed to rickets must play some role in their causation. A short description is given of the method of treatment adopted in both types of osteodystrophy and suggestions are made of other treatments which might be tried.

Acknowledgments.—I am indebted to Mr. Harry Holroyd, M.R.C.V.S., for suggestions and criticism which he has made, both in respect of the actual cases and in the writing of this article ; also to Messrs. H. & J. Holroyd, in whose practice these cases were seen, for interest shown and encouragement given.

References

1. Wright, J. G. (1932.) "The Diagnosis of Gastric and Intestinal Diseases of the Dog and Cat." (Paper presented at the 50th Annual Congress, N.V.M.A.)
2. Uvarov, O. (1944.) *Vet. Rec.* **56.** 237-240.
3. Wright, J. G. (1939.) *Ibid.* **51.** 409-421.
4. Hare, T. (1934.) Discussion on Chronic Nephritis (*Proc. roy. Soc. Med.* **37.** 789 *et seq.*)
5. Davies, G. O. (1936.) *Vet. Rec.* **48.** 1400.
6. Knight, G. F. & Muir, W. R. (1947.) *Ibid.* **59.** 277 & 279.
7. Schnelle, G. (1940.) *N. Amer. Vet.* **21.** 610-615.
8. Dailey, H. F. (1933.) Parathyroid Therapy. (Paper presented at 49th Annual Meeting Vet. Med. Ass. of New Jersey.)
9. Innes, J. R. M. (1931.) Second Report of the Director, University of Cambridge, Institute of Animal Pathology.
10. Abstract. (1936.) *N. Amer. Vet.* **17.** 18-19
11. Albright, Drake & Suek. (1937.) Johns Hopkins' Hospital Bulletin, **60.** 377.
12. Liu & Chu. (1943.) *Medicine*, **22.** 103.
13. Abstract (1944.) *Brit. med. J.* August 19th.
14. Theiler, A. (1934.) *Vet. J.* **90.** 143-175 & 183-206.
15. Hogg, A. (1947.) *Vet. Rec.* **59.** 47-53.
16. Hess, A. F. (1929.) Rickets, including Osteomalacia and Tetany. (See also for list of references to renal rickets.)
17. Hare, T. (1936.) *Vet. Rec.* **48.** 455.
18. Gilmour, J. R. (1948.) "The Parathyroid Glands and Skeleton in Renal Disease."
19. Jaffe, H. L., Bodansky, A., & Chandler, J. P. (1932.) *J. exp. Med.* **56.** 828.

CLINICAL COMMUNICATIONS

An Unusual Dystokia

J. BOLTON, M.R.C.V.S.

Gosforth

The following case was encountered by the writer during the summer of 1946.

Subject.—Shorthorn cow, third pregnancy.

Examination.—The presentation was anterior but the foetus was displaced ventrally and to the right so that head and feet were below the level of the pelvic floor. The cause of the displacement was a firm swelling, about the size of a football, situated dorsally and to the left. The swelling was closer to the anterior brim of the pelvis than were the presented parts of the foetus and it could with ease be moved forward and to the left away from the pelvic entrance ; on release of pressure, however, it immediately reverted to its former position.

Procedure.—Epidural anaesthesia was induced using 10 c.c. of 2 per cent. " Planocaine " and an attempt was made to remove the foetus by traction and repulsion of the swelling. This was unsuccessful. Further exploration revealed the slit-like entrance to the left cornu situated medially, a little in front of and above the os. On introducing the hand, the cornu was found to be enormously distended with clotted blood. The clots were tough, black in colour and appeared to be at least several days old. The quantity removed amounted to about a small bucketful. Subsequent removal of a live heifer calf by traction was quite simple.

* * * * *

Metastatic Melanomata of Internal Ear*

BOCOLA MANFREDO

(Veterinary Officer, Veterinary Department, Tripolitania)

Subject.—Grey police horse of imported Italian origin, about 15 years, in excellent condition.

History.—For some months it had been noticed that the animal suffered from melanomata found in great numbers on the under surface of the tail. About three weeks prior to slaughter it was reported that the subject had shown attacks of a nervous disturbance described as follows: sudden restlessness, with constant transference of the weight from one leg to another, movement of the head from side to side, staggering followed by a sudden heavy fall to the ground. There followed tonic and clonic spasms of the muscles of the body and limbs, the eyes becoming bulging and respiration short and fast. After about five minutes the attacks ceased suddenly, the animal regaining consciousness and rising, apparently normal, to its feet. The attacks started with a frequency of one every four or five days but subsequently increased.

Diagnosis.—Epileptiform fits caused by metastatic cerebral melanomata.

Post-mortem Examination.—Nothing of significance was found externally (other than the melanomata) or in the thoracic or abdominal cavities. The mouth and nasal sinuses revealed nothing abnormal.

Incising along its axis the external auditory canal to the membrana tympani, there appeared numerous small melanotic tumours. Internally, in the middle ear and semicircular canals, the tumours increased in size and became racemose, almost completely obliterating the normal structure. Both ears presented a similar pathology. Nothing abnormal was found in the brain ; there was a slight degree of meningitis.

It is regretted that no material was received for histological examination, though the nature of the neoplasm is in no doubt.

* Translated and transmitted by Major W. Plowright, Chief Veterinary Officer.

Weekly Wisdom

Inflation and taxation have combined to change the professional classes from a privileged group, envied for its security, into a beleaguered force, fighting to retain old standards and denied advantages enjoyed by many business men on the one hand and many wage-earners on the other.—The Lancet.

Questions and Answers

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Chorea and Questions Relating to Canine Distemper

Q. CCXXXII.—1. *In the established absence of the distemper virus, has chorea been known to ensue, and if so, to what condition was it thought to have been a sequel?*

2. *Following the vaccine virus or serum virus immunisation against distemper, does a solid immunity ensue, or are varying degrees of immunity acquired that could be broken down by exposure to heavy or light infection respectively?*

3. *What is the survival time of the distemper virus in a domestic household?*

4. *In the absence of clinical symptoms of distemper following the inoculation, is the patient likely to be infective to susceptible dogs?*

5. *Assuming that distemper serum will protect against a given outbreak of distemper, can it be used on a nursing bitch to protect her pups?*

6. *Does the milk of an immune or immunised bitch convey any resistance to the disease via her milk?*

7. *What evidence exists to support the belief that strains of the distemper virus exist, which are immunologically distinct from each other, as in foot-and-mouth disease?*

A.—We find difficulty in answering these specific questions in a direct authoritative fashion and our answers are set down in the expectation that they will stimulate others to express their views.

1. There did appear to be good grounds for the general belief which existed for many years that chorea was almost always the sequel to distemper virus infection. In many cases the evidence as to the earlier occurrence of distemper was good; in some it was doubtful. Proof that there had been no previous infection with distemper virus was, obviously, difficult to obtain, but in some cases submitted to biological and histological examination the findings did not suggest an association with Laidlaw-Dunkin virus. More recently cases of chorea have been ascribed to nutritional deficiencies, in that recovery has followed the feeding of an adequate diet, rich in animal protein and vitamins. In addition, what appears to be a new disease of dogs has made its appearance in Britain and chorea is quite often seen, even in the early phase of this disease.

2. Solid immunity to the Laidlaw-Dunkin virus appears to depend on the injected living virus gaining some hold and multiplying in the animal body. There is reason to believe that the immunity so engendered is, like that following natural infection, solid and life-long.

3. While the life of distemper virus in the "wet" state at room temperature, as handled in laboratory investigations, is very short, it is apparently much greater when present in discharges from an infected case. Clinical observations suggest that discharge which has dried out on an absorbent surface may contain virus for as long as, in the extreme case brought to our notice, two months.

4. We believe that the inoculated dog which shows no rise in temperature thereafter is not infective to susceptible dogs, unless through some of the virus being accidentally deposited on the coat at the time of the injection.

5. Maternal immunity is passed on through the colostrum of the bitch only during the first few days of the puppy's life, probably only while it is under ten days old. For the antibodies to be available to the puppies, it would be best to inject the bitch with serum before the puppies are born.

6. Antibody does pass *via* the colostrum of the bitch and this may be the chief reason for the difficulty in infecting young puppies. The amount of antibody passed will depend on the level circulating in the blood of the bitch and this might best be increased by the injection of distemper vaccine three weeks before whelping is expected.

7. The mass of evidence which was collected prior to the outbreak of the war failed to reveal the existence in this country of a distemper virus immunologically distinct from the classical Laidlaw-Dunkin strain. Since then, and particularly during the past three years, evidence has accumulated that distemper-like disease in the dog may be caused by a virus not of the original type. The recent correspondence in *The Veterinary Record* indicates that rather drastic revision of earlier views will be necessary.

Correspondence

Peritoneal Tympany

Sir,—I cannot agree with the reply to Question CCXXX (Peritoneal Tympany) in your issue of February 28th. In this practice we are often confronted with genuine cases of "peritoneal tympany," which do not correspond in any way to the description given by the writer. I regret to say that we do not find they "invariably respond" as described. On following them to the slaughterhouse or knackers' yard, we have found on *post-mortem* examination such varied conditions as liver abscess, actinomycosis of the reticulum and foreign body to account for the symptoms.

Yours faithfully,

Damory Lodge, Blandford, Dorset. WALTER B. FORREST.
March 3rd, 1948.

ABSTRACTS

[Genetic Control of Lymphomatosis in the Fowl. HUTT, F. B., & COLE, R. K. (1947.) *Science*. **106**. 379.]

Lymphomatosis is now generally considered to be caused by a virus and it has been shown that the disease can be effectively controlled by rearing to about five months of age in complete isolation from older birds. Complete isolation is somewhat impracticable on the average farm and an experiment has been carried out at Cornell University to determine the feasibility of breeding strains of fowl resistant to lymphomatosis. The experiment was designed to show whether, by selection, genetic resistance could be established at a level high enough to constitute control of the disease in commercial poultry flocks without sacrificing other economic qualities, *e.g.*, body size or egg production.

The experiment was carried out over a period of 12 years. The chicks were individually pedigreed, naturally exposed to lymphomatosis and all maintained under a uniform environment. The breeding stock was selected from dams and sires who had produced the most resistant families, together with promising untested birds from those same families.

In all selected generations, from the fourth onwards (1939), from 2,100 to 2,600 females were reared and maintained under viability tests to the age of 500 days. No culling was carried out and every bird that died was autopsied.

Three different strains were developed, two of which were highly resistant to neoplasms and the third highly susceptible. In the original 1935 unselected population, 14·6 per cent. died of neoplasms. By the tenth selected generation (1945) the mortality rate in the two resistant lines had been reduced to 7·9 per cent. and 8·3 per cent. respectively, while the susceptible line showed a female mortality of 34·9 per cent. from neoplasms before the 500th day. Between 90 and 95 per cent. of the neoplasms were lymphoid in nature. The mortality rate from other causes dropped in the later stages in the resistant lines, and the birds in these lines lived on an average 39 and 71 days longer than those of the susceptible strain.

The mean egg production in the resistant lines increased in the decade by 17 per cent. and 5 per cent. respectively, while the body weight increased by 20 per cent. and the egg weight by 10 per cent. In the susceptible line the body and egg size improved slightly but production declined.

Although the authors consider that they were able to show that lymphomatosis can be controlled genetically, the extent to which poultry breeders would be justified in undertaking the same policy remains to be determined. The desirability of maintaining a susceptible line to ensure exposure might be a deterrent, but exposure is almost inevitable in most flocks. It may be possible to develop resistant lines by exposing only enough of the chicks each year to provide tests of the sires while keeping the majority of the birds isolated so that their productivity will not be impaired.

It is suggested that the resistant lines might be developed at experimental stations and distributed to the farmers. Tests indicate that cockerels from resistant lines, when mated with birds unselected for resistance to lymphomatosis, induce an increase in viability and even in egg production. Such cockerels could be utilised by sending them out in large numbers to flocks that supply hatcheries.

J. G. C.

* * * * *

[Isolation of *Clostridium haemolyticum* from Bones. JASMIN, A. M. (1947.) *Amer. J. vet. Res.* **8**. 341.]

Twelve bone specimens from carcases found in a bacillary haemoglobinuria district were examined for the presence of *Cl. haemo-*

lyticum. Of these specimens three were bones from animals dead of unknown cause, seven from suspected redwater cases and two from cases of established redwater. One of the latter was a partially burned bone from an improperly destroyed carcase. All the specimens were from animals dead six months to a year. *Cl. haemolyticum* was recovered from the partially burned bone and two cases of suspected redwater. At the end of the year *Cl. haemolyticum* was again isolated from these specimens after they had been exposed to the weather. The details of the methods of isolation are described. The technique employed made use of the reaction of lecithinase in the presence of a lecithovitellin solution. Only cultures showing complete haemolysis in a red blood cell suspension and flocculation in a lecithovitellin solution at dilutions of 1:50 and a complete inhibition of both in the presence of *Cl. haemolyticum* antiserum were regarded as potential *Cl. haemolyticum*. No details are given of the criteria of differentiation between *Cl. haemolyticum* and *Cl. oedematiens* using these methods.

Jasmin explains his failure to recover *Cl. haemolyticum* from the other known case of bacillary haematuria on the premise that probably not all animals dying of the disease develop generalised haematogenous infection.

S. J.

REPORT

["**Slaughter of Young Calves.**" Government of Northern Ireland: Report of Select Committee. Published by His Majesty's Stationery Office, 5s. net.]

A Select Committee was set up by the House of Commons in June, 1947, to enquire into causes of slaughter of young calves.

In their Report, the Select Committee mention that subsidies for steer and heifer calves were announced subsequently, and go on to state that the slaughter of young calves has been a steadily increasing cause of anxiety since 1942, when milk became the Government's first priority in agricultural production. "The outstanding cause of the present unsatisfactory state of affairs is undoubtedly the relatively low price for beef as compared with the return obtainable from milk. The view expressed by the witnesses heard by us is that in present circumstances there is little incentive to farmers to worry about the quality of the calves their cows produce."

The Select Committee are of the opinion that the dual-purpose Shorthorn and British Friesian should replace the Ayrshire, Friesian and other milk breeds, so that calves worth rearing for beef may be produced.

Recommendations are as follows:—

(*a*) A subsidy of £4 per calf for all calves of a suitable type for beef or dairy or dual-purpose animal.

(*b*) This subsidy to be available in respect of all such calves, whether male or female, pedigree or non-pedigree, and to be paid when the calf reaches the age of six months.

(*c*) A subsidy of £4 in respect of every in-calf heifer or dual-purpose or suitable dairy type to be paid at or after calving.

(*d*) The price for young bulls, up to 2½ years, for beef should be increased to the same level as that for steer-beef.

(*e*) Farmers should be encouraged to keep first-class dual-purpose bulls.

(*f*) Sufficient feeding-stuffs should be made available to rear the proposed increased stock.

TRANSATLANTIC TRANSPORT OF SEMEN

In view of the favourable results obtained with the first and second experiment of transocean transport of semen from the United States to Italy which took place in 1947 on behalf of the Italian Experimental Station for Artificial Insemination (*Vet. Rec.* **60**. 58) the European Office of F.A.O. granted their aid for the carrying out of a third experiment.

Through F.A.O., Washington, the semen was sent by air to Italy and arrived in Rome on February 11th. Professor T. Bonadonna, helped by Professor Zavagli and his assistants, prepared the semen at the Stazione Sperimentale Zooprofilattica in Rome and distributed it to the various practitioners particularly chosen for the purpose. These practitioners will inseminate cows from the following provinces: Milan, Rome, Brescia, Cremona, Novara and Varese. The semen itself, sufficient for 500 cows, was given by a proved Holstein Friesian bull.

With the first experiment 31 calves were obtained. All are in the best of health and are being presented as exhibits at the First International Congress of Physiology and Pathology of Animal Reproduction and of Artificial Insemination.

IN PARLIAMENT

Additional Colleges for Veterinary Training

When the Animals Bill was considered by a House of Commons Standing Committee on March 2nd, Mr. Tom Williams, Minister of Agriculture, said that as a result of negotiations with the Royal College of Veterinary Surgeons he hoped legislation was not far distant for the establishment of two extra colleges to train and examine future veterinary surgeons.

The Minister was replying to Mr. J. H. Alpass, who said no one should be allowed to start a dairy business without first obtaining a licence with a certificate that all his cattle were free from tuberculosis. He also advocated a State veterinary service so that dairymen could have the best advice.

Mr. Williams said there was room for rapid expansion of attested herds. In three and a half years 1,200,000 cattle had been attested and he was anxious for as rapid progress as possible towards clean, healthy milk herds. They had been negotiating with the Royal College of Veterinary Surgeons to train more veterinary surgeons over the next two years.

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Questions

POLISH VETERINARY SURGEONS

Sir E. Graham-Little asked the Minister of Agriculture whether he will take steps to enable Polish veterinary surgeons residing in this country who seek admission to the new health service to be received on the same principle as Polish doctors are now admissible to that service, without seeking a British qualification, which is difficult to obtain owing to the congestion in the veterinary schools.

Mr. T. Williams: I presume that the hon. Member refers to the recruitment of Polish veterinary surgeons into the veterinary service of my Department. It would not be possible for me to appoint as veterinary officers persons who are not registered in the British Register of Veterinary Surgeons, nor have I any powers to secure registration. I would invite the attention of the hon. Member to Section 13 of the Veterinary Surgeons Act, 1881, which provides for the registration, in certain circumstances, of persons possessing foreign veterinary qualifications.

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AGRICULTURAL PRODUCTION PROGRAMME

Mr. Collins asked the Minister of Agriculture what special steps he will take, in addition to those already proposed, to ensure a substantial increase in food production in the next six months.

Mr. T. Williams: I am not aware of any additional special measures that I could take to increase food production during the next six months, but I earnestly hope that farmers will do their utmost to obtain the highest possible yields of crops, and the maximum output of milk and other livestock products.

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LONDON DAIRY SHOW

Mr. York asked the Minister of Agriculture whether the National Agricultural Advisory Service will be represented at the London Dairy Show in October.

Mr. T. Williams: My Department, in association with the National Institute for Research in Dairying, will stage exhibits on animal health and dairy research subjects at the London Dairy Show next October.

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PURCHASE TAX (MEDICINES)

Mr. Lipson asked the Chancellor of the Exchequer if he is aware that the Purchase Tax on medicines inflicts hardship on people suffering from ill-health; and if he will seek powers for its abolition.

Mr. Janner asked the Chancellor of the Exchequer whether he will facilitate the introduction of the new National Health schemes by freeing all medicines, drugs and other articles necessary for the maintenance of health and hygiene from Purchase Tax with a view to enabling all sections of the public to avoid unnecessary recourse to doctors and dentists.

Sir S. Cripps: The hon. Members will not expect me to anticipate my Budget Statement.

Mr. Lipson: While agreeing that the answer is not altogether unexpected, may I ask the Chancellor of the Exchequer at least to say whether the wind is favourable?

Sir S. Cripps: No, Sir.

Mr. Keeling: When preparing his Budget, will the right hon. and learned Gentleman bear in mind that many people are obliged to have recourse to doctors and dentists because they have been using patent medicines?

Sir S. Cripps: Yes, Sir.

NATIONAL HEALTH SERVICE (DOCTORS): APPEAL TO THE PRIME MINISTER

Mr. DE LA BERE asked the Prime Minister if, in view of the necessity of obtaining the co-operation of the maximum number of the medical profession before July 5th, 1948, he will consider appointing an independent arbitrator for the purpose of finding a solution to the present impasse.

THE PRIME MINISTER (Mr. ATTLEE): No, Sir. Matters which have already been decided by Parliament would not be a proper subject for arbitration.

Mr. DE LA BERE: Is the Prime Minister fully aware of the very grave position which must arise in July because he has refused to meet the views of the vast majority of the doctors? Is he further aware that the people of the country want to know why the Government have allowed this position to come to pass?

THE PRIME MINISTER: That does not give any justification for the hon. Member's proposal.

Mr. DE LA BERE: It gives every justification.

Air-Commodore HARVEY: Do the Government intend to charge the public for a service if they are not in a position to supply it?

HON. MEMBERS: Answer.

Mr. WILSON HARRIS: Would the Prime Minister be prepared to lend a hand himself in future negotiations, if he should think that that would be likely to help matters?

THE PRIME MINISTER: I am prepared to consider any suggestion put before me.

Squadron-Leader FLEMING: Are we to understand that no approach has been made up to date by either the B.M.A. or the Minister of Health upon this matter?

THE PRIME MINISTER: To whom?

Squadron-Leader FLEMING: Each other.

(No answer was given.)

NOTES AND NEWS

Diary of Events

Mar. 15th.—Institute of Meat: Lecture by Dr. W. R. Wooldridge in the City Livery Club, Sion College, Victoria Embankment, E.C.4, 5 p.m. (See Notice.)

Mar. 17th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, 1, Wimpole Street, W.C., 5 p.m.

Mar. 17th.—Meeting of the Association of Veterinary Teachers and Research Workers (Scottish Regional Group), at the Royal (Dick) Veterinary College, 2.30 p.m.

Mar. 18th.—Meeting of the North Wales Division, N.V.M.A., at Ruthin (Council Chamber), 2 p.m.

Mar. 21st and 22nd.—Annual Congress of the Association of Veterinary Students at the Veterinary College of Ireland, Ballsbridge, Dublin, commencing at 9.30 a.m.

Mar. 25th.—Annual Meeting and Luncheon of the Western Counties Division, N.V.M.A., at Exeter (Rougemont Hotel).

Mar. 31st.—Annual Meeting of the Scottish Metropolitan Division, N.V.M.A., at the Royal (Dick) Veterinary College, 2.30 p.m.

April 7th, 8th, 9th.—N.V.M.A. Committees and Council.

April 10th.—Annual General Meeting of the Association of Veterinary Inspectors (Ministry of Agriculture and Fisheries), at the Royal Veterinary College, N.W.1, 2 p.m.

April 14th, 15th and 16th.—Quarterly meetings of Council, R.C.V.S.

Sept. 8th to 15th (inclusive).—N.V.M.A. Congress at Southport.

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Congress Hotel List

The terms set out in the list of recommended Hotels and Boarding Houses (see page 128) are those which were ruling at the time the list was compiled.

Owing to the higher wages which have now to be paid to workers in the catering trades and other increased expenses, charges for accommodation are liable to be raised without notice, and no guarantee can be given to members who have not yet booked accommodation that the rates shown in the list still apply.

"So-called Skin Tuberculosis of Bovines and its relation to the Tuberculin Test"

Following last week's distribution to members, N.V.M.A., of the second edition of the Handbook on Poultry Diseases, with this issue of *The Veterinary Record* each should receive a copy of the Association's further publication, "So-called Skin Tuberculosis of Bovines and its relation to the Tuberculin Test." Any member failing to receive his or her copies of these publications should apply to the General Secretary, N.V.M.A., 36, Gordon Square, London, W.C.1. Announcement will be made in due course when copies are available for students.

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R.C.V.S. Council Election, 1948

Two further nominations have been received, namely, L. Guy Anderson and Harold Burrow.

The complete list of nominations is given below for the benefit of our overseas readers, who will already have received their voting papers.

Anderson, L. Guy—Aylesbury
Bosworth, T. J.—Streatley
Burrow, H.—Streatley
Hare, T.—London
Mattinson, A. B.—Bamber Bridge
Pugh, L. P.—Sevenoaks
Townson, W. K.—Peterborough
Tutt, J. F. D.—Winchester

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PERSONAL

Births.—HALFORD.—On February 25th, 1948, at 8, Riversleigh Avenue, Lytham St. Annes, to Olive, wife of Godfrey J. G. Halford—a son.

HOWAT.—On March 4th, 1948, to Hilda, wife of G. B. B. Howat, M.R.C.V.S., Halesworth, Suffolk—a son.

RAE.—On February 27th, 1948, at Victoria Nursing Home, Ripon, to Jean, wife of Alan Gordon Rae, M.R.C.V.S., Boroughbridge, York—twin boys.

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R.C.V.S. OBITUARY

MATHESON, Donald Capell, F.R.C.V.S., D.V.S.M. (VICT.), F.R.S.E., 3, Lockharton Crescent, Edinburgh, 11, formerly Professor of Pathology, Bacteriology and Meat Inspection, and sometime Acting Principal, Royal "Dick" Veterinary College, Edinburgh. Graduated London, December 16th, 1905. Died March 8th, 1948; aged 67 years.

MURLESS, Robert Armitage, Capt. late R.A.V.C., The Glebe House, Waltham St. Lawrence, Berks. Graduated London, December 18th, 1912. Died at Glebe Farm, Shurlock Row, Berks., March 7th, 1948.

Death of Professor D. C. Matheson

Our readers, particularly all associated with the Royal (Dick) Veterinary College, will be deeply grieved to learn that Professor D. C. Matheson was found dead in his room at the College on the forenoon of Monday last, having passed away peacefully in his chair.

Pending the publication of a full notice of his career in an early issue, we would now briefly recall that Professor Matheson, who joined the staff of the College in 1913, was then the only member of the staff of the Department of Pathology, which he had the satisfaction of seeing develop into an outstanding entity in the tuitional life of the College. Professor Matheson retired from his post as Professor and that of Acting Principal, which he held for a short while on the retirement of Sir Arthur Olver, in August, 1946, but recently he returned to help for a time in his former Department.

Professor Matheson was more than an admirable teacher: he was a beloved figure, learned and humorous. Members of the Association present at the Edinburgh Congress last year will recall vividly the typical interest and charm of his response to the toast of "The Guests."

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THE LATE MISS ELIZABETH BARBER, M.R.C.V.S.

In reference to the passing of Miss Elizabeth Barber, whose death we recorded with deep regret in our last issue, Mr. E. A. Gibson, M.R.C.V.S., of Stevenage, writes: "Those of us who knew Elizabeth Barber have lost a charming, sincere and sympathetic friend. Her mother has our deepest sympathy in her so much greater loss."

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THE LATE MAJOR JOHN STEWART WOOD

In our last issue we also notified, with deep regret, the death of Capt. and Hon. Major John Stewart Wood, late R.A.V.C., of Parkstone, Dorset.

Major Wood had been in practice as a veterinary surgeon for 50 years, at Parkstone. After graduating he joined the Army Veterinary Corps and served in India. He served in the Territorial Artillery, and went to France in the 1914-18 war, and later transferred to the Royal Army Veterinary Corps. For many years he was Veterinary Officer to Bournemouth and Poole Corporations.

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RESTORATION TO R.C.V.S. REGISTER

The name of Edgar Brendan Donohoe, of 12, Rothesay Avenue, Richmond, Surrey, which was removed from the Register of Veterinary Surgeons under sub-section 4, of section 5 of the Veterinary Surgeons Act, 1881, has been restored to the Register as from March 5th, 1948, he having, by statutory declaration made under the Veterinary Surgeons Act, 1881, shown sufficient cause for his failure to comply with the provisions of the Act.

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FOWL PEST

A New Order

The Ministry of Agriculture and Fisheries announces that as outbreaks of fowl pest continue to occur, it is still necessary in the greater part of England and Wales to restrict both the gathering together of live poultry and their movement from premises to which the infection of the disease may have been introduced by birds brought from elsewhere. Owing, however, to the lower incidence of the disease in the eastern, southern and midland counties of England, it now seems safe to modify the prohibition which prevented the movement of live poultry from those counties to other parts of England and Wales.

A new Order has, therefore, been made which has the effect of dividing Great Britain into two parts, namely (*a*) the Northern part consisting of Scotland and Cumberland, Westmorland and the Furness district of Lancashire, and (*b*) the Southern part being the remainder of Great Britain except the Isles of Scilly. The movement of poultry within and out of the Northern part is not restricted, but the movement of birds into that part from the Southern part is prohibited.

The new Order continues in force the other restrictions of the earlier Order. They are:—

(i) It is illegal in the Southern part, with certain exceptions, to sell, offer for sale or to exhibit for show or sale any live poultry, or to move such poultry from any premises on to which birds have been moved during the previous 28 days. The exceptions permit the holding of sales on premises to which birds have not been moved during the previous 28 days and also on market premises of poultry intended for immediate slaughter if in the case of sales on market premises they have been licensed by the Local Authority. Birds exposed at such licensed sales must be slaughtered under the supervision of the Local Authority.

(ii) In the Southern part it is illegal for a dealer to bring together live poultry from more than one farm or holding.

(iii) In any part of Great Britain it is illegal to use crates which are not in a clean condition to carry live poultry from a market as it is also to consign poultry to a railway station, there to be called for or redirected.

(iv) Live poultry may not be moved to the Isles of Scilly from the Southern part of Great Britain.

This Order does not affect the movement or sale of day-old chicks.

Copies of the Order, which is entitled the Live Poultry (Regulation of Sales, Exhibitions and Movements) Order of 1948, may be obtained from the Ministry of Agriculture and Fisheries, 99, Gresham Street, London, E.C.2.

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MASTITIS CONTROL

In its issue of February 20th, the *Farmers' Weekly* reports that a committee has been set up at Chipping Norton, Oxfordshire, to explore the possibilities of farmers establishing their own laboratory for mastitis control. This was decided at a recent meeting of dairy farmers, called through the Chipping Norton Farming Club by Major Ian Campbell, who said the scheme had been put forward because so many farmers were keen to take advantage of a testing scheme by Dr. Barron, veterinary investigation officer, Southern Advisory Province, Reading University. But they had found it was not practicable for Dr. Barron to take on the regular testing of milk from all the herds. The scheme, it is suggested, will be privately run by local farmers, will be financed by a levy per cow, and will be administered by an executive committee.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Swine Fever:

Surrey—Newlands Cottage, Polsden Lane, Ripley, Surrey (March 3rd).

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PHYSIOLOGICAL INFERTILITY AND MODERN HUSBANDRY

Mr. H. W. Steele-Bodger, a Past-President of the N.V.M.A., in the course of an address to a conference at Peterborough in which he dealt with animal disease control, said that he did not accept the suggestion that anti-abortion vaccine was a cause of infertility, emphasising that there was an increasing amount of infertility not due to specific disease which appeared to be associated with so-called improved methods of pasture management. How, no one yet knew. It might be that the old pastures had deeper rooting weeds which brought up something from the sub-soil.

He once believed that new leys would prove a cure for parasitism, but he had found that this was not the case. It was probably because of the heavy stocking which was practised on new grass that the temporary leys rapidly became as heavily infested as before.

Pasture management and its effect upon disease was the subject of enquiry by the National Veterinary Medical Association, which had in mind the calling of a conference of experts in the summer.

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THE ANIMAL HEALTH TRUST

Mr. Anthony Buxton, M.R.C.V.S., has joined the team of research workers investigating poultry diseases at the Animal Health Trust's new farm livestock research station. Mr. Buxton has worked mainly on Salmonella infections of poultry and their relationship to public health and food poisoning. He has recently studied avian immunity.

The Trust is also pleased to announce the appointment of Mrs. Winnie Barber as its Canine Liaison Officer.

Mrs. Winnie Barber is well known to all in the canine world as an international judge and journalist, as well as having owned one of the strongest Sealyham and Scottish Terrier kennels in the country before the war.

Her work for dogs has been life-long and during the war she was proud to have raised over £17,000, through dogs and their owners, for the R.A.F. Benevolent Fund. Her ability in this direction, together with her knowledge of the dog world, seem to augur well for the future of the Canine Health Fund of the Trust.

Mr. Norman Comben, B.Sc., M.R.C.V.S., will be assisting her and they hope to visit a number of dog shows and make contact with both the members of the dog world and of the veterinary profession during the coming months.

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LEGAL NOTES

Chemist's Advertisement Claim

Successful Prosecution by the Veterinary Council of Ireland

Convicted at Daingean (Offaly) District Court, of a breach of Sec. 46 (1) of the Veterinary Surgeons Act, 1931, by causing publication of an advertisement claiming "Spectacular successes in the treatment of animals," thus holding himself out, directly or by implication, as practising or prepared to practise veterinary medicine, Alphonsus J. Dolan, L.P.S.I., a recently qualified chemist, of Main Street, Daingean, was given the benefit of the Probation of Offenders Act, by District Justice A. O'Donoghue, but ordered to pay £5 5s. costs and £6 9s. expenses incurred by the prosecution.

The prosecution was brought by the Veterinary Council of Ireland represented in Court by Mr. T. B. Hannin. The defendant was represented by Mr. James Rogers.

Mr. Hannin said the proceedings were brought under Sec. 46 (1) of the Act which he quoted as follows: "It shall not be lawful for any person to practise or represent or hold himself out, whether directly or by implication, as practising or being prepared to practise veterinary surgery or veterinary medicine unless he is for the time being a registered veterinary surgeon."

The summons in this case, continued Mr. Hannin, was brought on account of an advertisement which appeared in the *Offaly Independent* of October 4th, 1947, which read as follows: "Mr. A. J. Dolan has opened a medical hall in Daingean. Spectacular

successes in the treatment of animals. Have your prescriptions dispensed by a qualified man."

Mr. Hannin said the prosecution complained of the use of the words "Spectacular successes in the treatment of animals."

He would submit that what the ordinary person would think was that the defendant was prepared to treat animals.

Treatment was defined in the Oxford Dictionary as management in the application of remedies, medical or surgical application or services, and he would say that to "treat" meant more than merely prescribe, and connoted that he was prepared to "treat" animals in the full sense of the word, whether he did so or not in fact. As that was the meaning the ordinary man in the street would attach to the words in the advertisement, the defendant was guilty of an offence under the Section.

Mr. Hannin said defendant did not come under the heading of persons excepted from the Section. The exceptions were set out in a Section which read: "Nothing in this Section shall render it unlawful for any farmer or other person who habitually keeps animals for profit, or the servant of any such person, to perform on or administer to an animal of that class (whether owned or not owned by such person), any operation or medicine, the performing or administering of which is incidental to the usual care and management of animals of that class, provided such person or servant does not hold himself out to be a registered veterinary surgeon." It was thus recognised that administering medicine was practising veterinary medicine.

Mr. Hannin produced defendant's original order for the publication of the advertisement, which Mr. Rogers said he was admitting.

Mr. Rogers said the Justice already had the advertisement before him, adding: "It is the professional man's method of introducing himself to potential clients or customers in the district in which he arrives for the first time.

"Unfortunately he introduced the ingenuous or childish flourish, 'spectacular successes with animals.' One of the principal features of a chemist's business in a rural district like this is the sale of medicines for animals.

"I often thought that doctors, physicians and veterinary surgeons must sometimes wonder whether chemists are not sometimes impinging on their province, because I think it is true that nine out of ten human beings in country districts who feel a pain run first to the chemists rather than to the doctors. The Justice: Into a public house, Mr. Rogers, that's where I'd go. (Laughter.)

Mr. Rogers: Many go to the chemists first, and in the same way a small farmer would hesitate about calling in the veterinary surgeon until he has tried the chemist's bottle first.

"When Mr. Dolan has proclaimed in that advertisement what he is—a chemist, A. J. Dolan, L.P.S.I.—no one could be misled as to the meaning of the phrase 'spectacular successes in the treatment of animals.' What they meant was that he was paying a tribute to the medicines that he stocks and sells.

"On the face of that advertisement there is no holding himself out, even by implication, to be practising veterinary medicine, or a veterinary surgeon. The only words that could be objected to are those in that phrase 'spectacular successes in the treatment of animals,' and it is for you to say what the word 'treatment' means."

Mr. Rogers: What did you mean by this phrase, "spectacular successes in the treatment of animals?" Witness: Just that I stocked good quality veterinary medicines.

You have not been asked to treat animals as a result of it?—No.

Did you ever get any communication from the Veterinary Council about this advertisement?—No. I knew nothing about it until I got this summons yesterday week.

Mr. Hannin (cross-examining): You meant you merely would give out medicines to people who wanted them?—Yes. Do you agree that "treatment" was a wrong phrase to use?—I do.

Mr. Rogers said if the defendant's attention had been drawn to the Council's objection to the use of the words, he would have withdrawn them, and if necessary published a statement that what he meant was that he was selling veterinary medicines.

The Justice said he would have to hold against Mr. Rogers. Defendant had been guilty of a breach of Sec. 46 (1) of the Act, by holding himself out by implication as prepared to practise veterinary medicine. But it was not a serious case. Whether or no the defendant was treated badly by the Veterinary Council was hardly a question for him to go into: they apparently acted in the way stated. If they had written and pointed out their objection the defendant, who was a decent man, would have withdrawn the advertisement and never issued it again. But an offence was committed and there would have to be a conviction.

He agreed defendant was not conscious of having offended, and did not for a moment intend deceiving anyone. It was just pure bad luck in unfortunate wording of the advertisement.

Mr. Rogers applied for the Probation Act and Mr. Hannin said he was instructed to say there were expenses; but the Council was not pressing for penalty.

The Justice said he was perfectly satisfied this was a case for the Probation Act.

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KENYA'S £40,000 GIFT TO MAKERERE COLLEGE

Endowment of "Kenya Readership of Veterinary Science"

Makerere College, Uganda, the Higher College for East Africa, has been given £40,000 by the Government of Kenya for the endowment at the College of a "Kenya Readership of Veterinary Science," states the *Colonial Office News Service*, and continues: "Kenya's gift, in the words of the Governor in a letter to the Chairman of Makerere College Council, 'cannot fail to redound in the future to the lasting benefit of all African stockowners.'

"The sum of £40,000 is part of the balances accumulated by the Livestock Control Scheme from June 1st, 1942, when the Joint Government and Military operation of the control ceased, to its winding up on December 31st, 1946. During this time over 1,000,000 head of cattle, sheep and goats were purchased from African stockowners. On its termination, there was a reserve balance of £92,000.

"In considering the disposal of these funds, the Governor was of the opinion that some part should be devoted to a general purpose which would benefit all who had contributed both directly and indirectly to the successful operation of the Livestock Control Scheme, *i.e.*, producers and consumers alike. It was accordingly decided that no more fitting purpose could be found than the use of £40,000 of the total sum for endowing a Kenya Readership of Veterinary Science at Makerere College. The balance of £52,000 will be spent in a manner yet to be decided for the benefit of the African community."

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World's Record Milk Yield for Britain.—With a yield of 45,081 lb. of milk in 365 days, Bridge Birch, a British Friesian cow, at the beginning of the month handsomely beat the previous world record milk yield, the 41,943 lb. produced in a year by the U.S. cow Carnation Ormsby Madcap Fayne.

CORRESPONDENCE

Correspondents should write as briefly as possible and letters should not exceed 350 words.

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

VACATION PRACTICE FOR STUDENTS

Sir,—My attention recently has been drawn to the fact that students are finding increasing difficulty in arranging to see practice during the coming Easter and Summer vacations.

Whilst realising that many practices at the moment are undergoing some reorganisation by absorbing the large number of men from the R.A.V.C. and also new students, yet we all of us owe a duty to our profession and its future well-being.

Periodically one hears a great deal of comment from practitioners upon the lack of practical experience amongst the recently qualified. I wonder how many of those who are so vocal in this respect are prepared to accept their share of the responsibility to make good this supposed deficiency.

The whole future of the profession depends upon the existing students. May I ask that practitioners do their best to give them that very necessary practical background.

Yours faithfully,

49, Cambridge Street, Aylesbury, Bucks. L. Guy Anderson.

March 8th, 1948.

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CANINE HYSTERIA

Sir,—The exchange of views on the vexed subject of "canine hysteria" makes interesting reading. From the viewpoint of the practitioner, a line of treatment giving relief to the patient and client appears to be of more value, rather than the present academic discussion on what constitutes the clinical picture. All of us know the latter only too well. Forgive the apparent criticism, but the *Record* claims to be a journal for the practitioner and in my opinion an exchange of views on this line might be an advantage.

Yours faithfully,

15, Inverleith Place, Edinburgh, 4. John M. Buchanan.

February 28th, 1948.

N.V.M.A. CONGRESS, 1948

September 8th - 15th (inclusive)

List of Hotels in Southport *

	Charge per Day	
	Full Board	*Bed and Breakfast*
LICENSED HOTELS		
Prince of Wales Hotel, Lord Street, Southport (*Headquarters*) ...	30/-	—
Palace Hotel. Westcliffe Road, Birkdale	25/- to 35/-	—
Bold Hotel, Lord Street, Southport	25/-	16/6
Crown Hotel, Liverpool Road, Birkdale	—	12/6
Queen's Hotel, Promenade, Southport	25/-	—
Scarisbrick Hotel, Lord Street, Southport	25/-	—
	21/- 7 days or over	
CONDITIONALLY LICENSED HOTELS		
Alexandra Hotel, Alexandra Road, Southport	25/-	—
Belle Vue Hotel, Lord Street West, Southport	From 35/-	—
Clifton Hotel, Promenade, Southport	22/6 to 30/-	—
Mornington Hotel, Hoghton Street, Southport	23/6 to 24/6	15/- to 16/-
UNLICENSED HOTELS		
Carlton Hotel, Lord Street, Southport	25/-	—
Gables Private Hotel, Hoghton Street, Southport	21/6 to 23/6	—
Sandringham Hotel, Promenade, Southport	21/- to 25/-	Saturday to Saturday bookings only
Waverley Hotel, Promenade, Southport	25/-	—
PRIVATE HOTELS AND BOARDING HOUSES		
Mrs. E. Bartle, Seafield, 2, Irving Street, Southport	14/6	—
Chantrey House, 7, Albert Road, Southport	18/6	12/6
Easemore Private Hotel, 3, Portland Street, Southport	16/6	11/6
Eyredene, 8, Knowsley Road, Southport	17/6	10/6
Franklyn Hotel, 65-65a, Promenade, Southport...	21/-	—
Mrs. N. D. Holt, Derby House, 6, Knowsley Road, Southport ...	17/6	10/6
Hopefield Private Hotel, 12, Albany Road, Southport	17/6	10/6 Saturday to Saturday bookings only
Messrs. Hulley & Shufflebottom, 31, Leicester Street, Southport ...	17/6	12/6
Ivanhoe Private Hotel, 87, Avondale Road, Southport	15/6	—
Knowsley Private Hotel, 2, Knowsley Road, Southport	17/6	10/6
Marlborough Private Hotel, 9, Church Street, Southport	14/-	10/-
Mr. J. W. Matthews, Barrowfield, 37, Leicester Street, Southport ...	18/6	—
Orleans Private Hotel, 8, Lathom Road, Southport	22/6	13/-
Queen's Gate Private Hotel, 49 Queen's Road, Southport	21/-	12/6
Russell Hotel, 56, Promenade, Southport	18/6	12/6
Stafford House, 18, Bank Square, Southport (Mrs. M. W. Howarth)	15/6	10/6
Stella Maris Private Hotel, 25, Promenade, Southport	18/6	12/6
Summerfield Private Hotel, 31, Leicester Street, Southport	17/6	12/6 Saturday to Saturday bookings only
Talbot Private Hotel, Portland Street, Southport	18/6	11/6
Tatley Private Hotel, 83, Manchester Road, Southport	17/6	12/6
Mr. H. Tyson, 39, Bath Street, Southport	15/-	10/6
Willow Bank Private Hotel, 117, Leyland Road, Southport	15/-	10/6 Saturday to Saturday bookings only

Members are advised to make reservations by March 25th, otherwise accommodation cannot be guaranteed.